

Journal of Mycology

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ADDRESS: EDITOR JOURNAL OF MYCOLOGY



PROFESSOR A. P. MORGAN AT HIS HOME PORCH

From Picture Taken a Short Time Before His Death; Mrs. Morgan is on the Right.

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VOLUME 13—NOVEMBER 1907

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OBITUARY: PROFESSOR A. P. MORGAN.

W. A. KELLERMAN.

The death of Professor Morgan has removed from us a genuine naturalist, an eminent mycologist, and splendid man. On this *Journal* particularly will fall a heavy loss—valued contributor as he was, beginning with the first volume and at numerous times assisting even to the end of the thirteenth; in fact, the MS. he had nearly or quite completed will be used also in the beginning of the fourteenth volume.

It is a pleasure to state that the deep interest in nature, particularly the vegetable world, which his daily life, study, and publications evinced, had nothing of sordid motive—this was not an agency or means of accumulating wealth or even a method of earning a livelihood. His later years on the farm were quite favorable to sympathetic enjoyment of nature and most fully embraced. My own visit at his home a summer or two ago, with a short ramble through his fields and woods, put me in touch with a type of naturalist too rare these later days; revealed to me a soul alive to the beauties of nature and responsive to her sweetest influences.

Professor Morgan began studying the higher fungi when little assistance in this country was available. There was Frost of Vermont, with whom he at once came in contact, as also our Nestor of Agaricology, Peck of Albany. We suspect their friendly communications aided and encouraged him greatly. But an independent and critical mind was exhibited at once. The work

that he has done from first to last is his own — his papers being a presentation of his own good judgment. His name is indissolubly linked with American Mycology — great as the strides, and changes in altitude in the future may be. His name has been associated by Peck, Saccardo, Massee, and Ellis, with several interesting species, for example, *Boletus Morgani*, *Polyporus Morgani*, *Lepiota Morgani*, *Russula Morgani*, *Cantharellus Morgani*, *Hypoxylon Morgani*, *Peziza Morgani*.

He did not attend scientific meetings, and therefore personally he was unknown to most of the botanists — not so of course his work extensive and valuable, which is not dependent on personal contact.

No portrait has been published, though we were insistent on having a good photograph, — which then after some reluctance he promised at an early opportune time. But it proved too late, and consequently I will use one of the pictures I made for my own pleasure as I kodaked him at his own home, standing on the porch with the members of his family, Mrs. Morgan being on the right. From this charming point he had a view for miles over the rich and beautiful Miami Valley. I have asked Mrs. Morgan for a brief outline of her husband's life and the following points she has kindly furnished me:

Andrew Price Morgan, born at Centerville, Ohio, 27th October, 1836, son of Harrison S. Morgan and Lydia Ann Newman; died of pneumonia at his home, Preston, Ohio, October 19, 1907. Incineration by the Cincinnati Cremation Co., October 21, 1907.

He began the study of Botany while a teacher in the schools of Dayton, Ohio. Was first assistant then principal in the ward schools, afterward Professor of Mathematics in the Dayton High School. From this position he went into the army, first in the 84th Ohio Infantry — carrying a stoutly bound copy of Gray's Manual in his knapsack — and again as First Lieutenant in the Fourth Independent Battalion O. V. C. Being a member of the Dayton Light Guards he was a well drilled soldier and did a great deal of work drilling volunteers. At the close of his army service he was very ill with typhoid fever and to avoid confinement in the school room traveled in the states of Wisconsin and Minnesota representing the school book firm of Wilson Hinkle & Co. for seven years. A partial paralysis closed his career. He could neither read nor write for two years. In 1870 he married Laura M. Vail of Pomfret, Vermont, and when he quit traveling for the school book firm he went to his wife's old home midway between the White and Green mountain ranges. Here he began his first study of fungi. He procured a copy of *Hymenomycetes Europaei* by Elias Fries. I find this written on the blank leaf of the well worn volume, "Cost \$8.25. Imported by Scribner Welford & Armstrong. New York City, June 2, 1876." He identified the Lichens with the aid of Tuckerman of Amherst, Mass. and

Mosses with the aid of Frost of Brattleboro, making the personal acquaintance of both these men. His early gatherings of Agarics were determined by Chas. H. Peck of Albany, N. Y., with whom he has kept up communication ever since. After more than three years of this delightful recuperating of health he returned to Dayton, Ohio, and was Principal of the Second District School for several years.

He has lived on the little farm in Preston for twenty-three years — "the happiest of his life!" he says, studying, reading, working in his own way. He was reading *An Introduction to Logic*, by H. W. B. Joseph Oxford, a few days before his death and had just finished reading with great pleasure Ernest Mach's *Space and Geometry*.

We append a list of Professor Morgan's publications — which we have been able to complete with Dr. Farlow's assistance.

- The Study of Fungi, *Bot. Gaz.* 2:104-5, May 1877.
Flora of the Miami Valley, Ohio, 12°, pp. 68, 1878.
Agaricus Morgani Peck, *Bot. Gaz.* 4:208-9, Sept. 1879.
A New Polyporus, *Bot. Gaz.* 7:135-6, Nov. 1882.
Mycological Flora of the Miami Valley, Ohio, *Jour. Cin. Soc. Nat. Hist.* VI-XI; Apr. 1883-Oct. 1888.
Kentucky Fungi, *Bot. Gaz.* 8:156-7, Jan. 1883.
The North American Geasters, *Am. Nat.* 18:863-970, Oct. 1884.
North American Geasters, *Jour. Mycol.* 1:7, Jan. 1885.
On the Study of the Agaricini, *Jour. Mycol.* 1:41-2, March 1885.
North American Agarics, The subgenus *Amanita*, *Jour. Mycol.* 3:25-33, March 1887.
The Genus *Geaster*, *Am. Nat.* 21:1026-1029, Nov. 1887.
Mycological Observations, I, *Bot. Gaz.* 15:84-86, Apr. 1890.
North American Fungi, The *Gastromycetes*, *Jour. Cin. Soc. Nat. Hist.* XI-XIV, Jan. 1889-July 1891-March 1902.
North American *Helicosporae*, *Jour. Cin. Soc. Nat. Hist.* 15:39-52, April 1892.
Myrostoma coliforme Dicks. in Florida, *Am. Nat.* 26:341-3, Apr. 1892.
Two New Genera of *Hyphomycetes*, *Bot. Gaz.* 17:190-2, June 1892.
New North American Fungi, *Jour. Cin. Soc. Nat. Hist.* 18:36-45, pl. 1-3, 1895 (1896).
Myxomycetes of the Miami Valley, Ohio, *Jour. Cin. Soc. Nat. Hist.*, XV-XIX, Oct. 1892-Aug. 1896.
Description of a New *Phalloid*, *Jour. Cin. Soc. Nat. Hist.* 15:171-2, Jan. 1893.
Synonymy of *Mucilago spongosa* (Leys.), *Bot. Gaz.* 24:56-7, 31 July 1897.
Notes on some Florida *Myriostomas* and *Geasters*, *Jour. Mycol.* 8:3-4, May 1902.
A New Genus of Fungi, *Jour. Mycol.* 8:4-5, May 1902.
Morchella — The *Morels*, *Jour. Mycol.* 8:49-50, June 1902.
Note on North American Fungi, *Jour. Mycol.* 8:105-6, Oct. 1902.
A New Genus of Fungi, *Sporocystis*, *Jour. Mycol.* 8:169, Dec. 1902.
The *Discomycetes* of the Miami Valley, Ohio, *Jour. Mycol.* 8:179-92, Dec. 1902.
Lepidoderma geaster (Link), *Jour. Mycol.* 9:3-4, Feb. 1903.
A New Species of *Sirothecium*, *Jour. Mycol.* 9:82-3, May 1903.
Dictyostelicae or *Acrasieae*, *Jour. Mycol.* 9:84-86, May 1903.
Some Western Specimens, *Jour. Mycol.* 9:161, Oct. 1903.
Note on *Corticium leucothrix* B. & C., *Jour. Mycol.* 9:162, Oct. 1903.

- A New Species of *Berlesiella*, Jour. Mycol. 9:217, Dec. 1903.
 A New *Sirothecium*, Jour. Mycol. 10:1, Jan. 1904.
 A New *Melogramma*, Jour. Mycol. 10:49, March 1904.
Tubercularia fasciculata Tode, Jour. Mycol. 10:97-8, May 1904.
 A New Species of *Pyrenomyces*, Jour. Mycol. 10:161-2, July 1904.
Pyrenomyces scarcely known in North America, Jour. Mycol. 10:226-8, Sept. 1904.
Sphaeria Calva Tode, Jour. Mycol. 11:1, Jan. 1905.
 The Genus *Gibellula* Cavara, Jour. Mycol. 11:49-50, March 1905.
 A New *Chaetosphaeria*, Jour. Mycol. 11:105, May 1905.
 A New Species of *Kalmusia*, Jour. Mycol. 11:153, July 1905.
Peziza Pubida B. & C., Jour. Mycol. 11:154, July 1905.
 North American Species of *Marasmius*, Jour. Mycol. 11:201-12, 233-47, 12:1-9, Sept. 1905-Jan. 1906.
 North American Species of *Heliomyces*, Jour. Mycol. 12:92-5, May 1906.
 North American Species of *Lepiota*, Jour. Mycol. 12:154-9, 195-203, 242-48, 13:1-18, July 1906-Jan. 1907.
 North American Species of *Agaricaceae*, Jour. Mycol. 13:53-62, 143-153.

TWO NEW HYPOGAEIOUS SECOTIACEAE.

BY WILLIAM ALBERT SETCHELL.

In the immediate vicinity of Berkeley, and in fact upon the campus of the University of California itself, as well as elsewhere, Dr. N. L. Gardner and myself have not infrequently found specimens of two members of the *Secotium*-family which appear to be new and which are strange in their habitat. They grow in exactly the same fashion that many of the so-called hypogaei do, — i. e., not really buried in the ground, but partially buried under earth and absolutely covered over with a compact layer (or layers) of fallen leaves and other debris. It is in just such places and covered in exactly the same way, that we have found many of the true hypogaei, such as specimens of *Hymenogaster*, *Hydnangium*, *Tuber*, etc., in this same region. The method of searching for these *Secotiaceae* is just the same as that employed for the *Hymenogastreae*, *Tuberaceae*, etc., viz., of raking off the covering of dead leaves and exposing the ground underneath, when they may be seen either superficial on the earth, or else very slightly buried in it. It seems proper to call attention to this matter of habitat, since, so far as the literature is known to me, there is almost no mention of such habitat favored by other members of the same group (cf. however, Bucholtz, *Hedwigia*, vol. 40, p. 314, 1901) and also because of the supposed absence of hypogaeous species in this family, the statement has been made that the members of this group are all epigaeous. (cf. Fischer, in Engler and Prantl, *die nat. Pflanzenfam. I.* 1 * * * p. 299, 1898).

Another striking thing about the plants with which this article is concerned is, that they both appear at first sight to be

young individuals of some Hymenomycetous species. On first being uncovered one looks very much like some species of *Coprinus* or similar genus, while the other has a very striking resemblance to a young *Russula* with a red pileus. Both have well developed stipes, what appear at first sight to be gills, and one has a transverse veil, although the last is slight. On careful examination, however, it is seen that they are members of the Secotiaceae and, although new, are related to species long described.

Both of these plants belong to the genus *Secotium* as extended by Fischer in his account of this family in the Engler and Prantl. A careful study of all the forms included under *Secotium* in this extended sense, however, will probably result in a splitting into several different genera, each reasonably distinct from the other. I am not sufficiently acquainted with the species described otherwise than from description and shall consequently not undertake any segregation which has not already been proposed. I realize the difficulties in proposing any satisfactory ultimate segregation except as the result of extensive and comprehensive study of types and of fresh or well prepared alcoholic materials representing various conditions and stages of development. In general appearance, all the species are agaricoid rather than like the members of the Hymenogastraceae, while in structure of the mature gleba, they in common with the other Secotiaceae, range from those closely resembling the Hymenogastraceae to those which have gill-like structures which anastomose only slightly. In color of spores, the members of this genus in its extended sense range from colorless through yellow and brown to black, while in shape of spores, they vary from globular through ovoid to fusiform. These extreme variations make the proper reference as to genus very uncertain in the case of new species.

The type of the genus *Secotium* is *S. Guienzii* Kunze from the neighborhood of the Cape of Good Hope. It was briefly described by Kunze in 1840 (*Flora*, p. 322) and it has been well illustrated from the original specimens, by Corda (*Icones Fungorum*, vol. 5, pl. 6, f. 10-18, 1842), so that we may judge fairly of all necessary details of its structure. With its distinct volva, the coarse veins of the gleba, its lack of anything resembling lamellae, its fairly regular chambers, and obovoid, colorless spores, it differs very decidedly from either of the two plants which are the subject of this article, as well as from all other species which have thus far been referred to the same genus with it. In the same work, Corda also figures Berkeley's *S. melanosporum* (loc. cit., pl. 6, f. 19-24) which most nearly of all yet described species resembles *S. Guienzii*, but it has no persistent and conspicuous volva, what appears to be a sort of arachnoid transverse veil, and very dark, brownish-black, ovoid spores. It has, however, similar veins running out through the gleba.

Finally Corda illustrates and describes a second species of Berkeley's, viz. — *S. coarctatum*, from Swan River in Southwestern Australia, the same locality whence the original specimens of the preceding species also came. *S. coarctatum* seems to be close to the plant described below under the name of *S. tenuipes* and its characters will be discussed in that connection. It is certainly some considerably different from both the species mentioned above. There is one other type which especially concerns us in the present consideration and that is the *S. Mattirolanus* which is the type of the genus *Elasmomyces* of Cavares (cf. Malpighia, 1898). This genus is subsumed under *Secotium* by Fischer (loc. cit.) but with the statement that it is doubtless to be considered independent, only the difficulty at present is to determine just which of the described species of *Secotium* are to be associated with it as well as perhaps the exact lines of demarcation between the two genera. The species, to be described below under the name of *Elasmomyces russuloides*, is very close to Cavares's plant and a farther discussion will be found in connection with the description of it. Of the other species referred to this genus few are known to me from actual specimens. The widely distributed *S. acuminatum* (or *S. agaricoides* Hollos) has not occurred to me nor does it occur in Californian collections, unless indeed, as hardly seems probable from the descriptions, it is identical with *S. nubigenum*, Harkness, as Hollos supposes (cf. Hollos, Die Gastromyceten Ungarns, p. 37, 1904, under *S. agaricoides*, also Lloyd, Mycological Notes, p. 139). Hollos has also referred under the same species the *S. erythrocephalum* Tulasne, a species collected by myself in New Zealand, which seems certainly amply distinct from the Hungarian plant, at least. A careful search for the type specimen of *S. nubigenum*, Harkness, in his collection in the Herbarium of the California Academy of San Francisco, even before the bulk of that collection was destroyed by the fire following the earthquake of April 18, 1906, failed to disclose it and there seems to be no doubt that Harkness failed to retain, or at least, to carefully preserve it. The *Secotium Texense* B. & C., as well as the *S. decipiens* Peck, seem properly to be referred to the genus *Gyrophragmium* as has been done (cf. Lloyd, loc. cit. pp. 154 and 197).

In all there seems to be only six species of those credited to this genus which have been referred to as having been found in the United States, viz.:

S. texense B. & C., now referred to *Gyrophragmium*.

S. decipiens Peck, now referred to *Gyrophragmium*.

S. nubigenum Harkness, which has been referred, but probably erroneously to *S. acuminatum* Mont.

S. Warnei Peck, which seems by unanimous consent to be referred to *S. acuminatum* Mont.

S. coarctatum B. & C., to which species a specimen from Texas has been referred by Lloyd (cf. under *S. tenuipes* below) and *S. macrosporum* Lloyd, from Texas (Lloyd, Myc. Notes, p. 139, pl. 13, f. 12-16, 1898).

It will be seen from this list that there are only four species, in all probability, of *Secotium* in our flora and neither of two described below are likely to belong to any one of these. They have been compared as carefully as possible with all the descriptions and figures so far as known to me and seem reasonably, if not amply, distinct.

***Secotium tenuipes* sp. nov.** — Gregarium; peridio subgloboso aut late ovoideo, subumbonato, basi plus minusve truncato et velo horizontali exiguo evanescente arachnoideoque instructo, 1-2 cm. lato et 1-1.5 cm. alto, luteo-fusco ad fusco, glabro, carnoso; gleba a stipite fere libera sed ad apicem extremam lamelliformiter decurrente, lacunis sinuosis aut regulariter aut indefinite, labyrinthico marginibus lamelliformibus, luteo-fusca, sine venis propriis; stipite longo aut brevi (ad 2 cm.), gracile, evolvato, striato, per glebam libere percurrente sed ad apicem in glebam expanso; basidiis 2-4-sporiferis, sterigmatibus distinctis subintumescentibusque; sporis ellipticis aut ovoideis, 12-16 μ longis, 8-12 μ latis, luteofuscis, levibus. In terram argillaceam sub foliis Eucalyptus et Quercus prope Berkeley et San Francisco, Californiam. Plate 107, f. 4-8.

This species is not uncommon under the leaves of Eucalyptus Globulus and of some other trees, particularly oaks, in the vicinity of the Eucalyptus, both in the neighborhood of Berkeley and of San Francisco. When first uncovered it looks very much like a *Bolbitius*, or a *Coprinus*, especially when the lamelliform gleba is exposed more than usual at the base. This aspect is very well shown in the figure on plate 107. It is usually four to five centimeters in height, with a longer or shorter stipe, an evanescent and somewhat arachnoid veil, and the whole plant is a yellow-brown to a dark-brown color. They generally appear more or less bent, flattened under the weight of the layer of leaves which entirely conceals them from view until exposed by the use of the rake. They occur scattered over a considerable area, as a rule, in twos or threes together and seem to prefer slight slopes which are well drained and yet retain moisture longer than the neighboring levels. There is little trace of any structure which might be supposed to represent a volva, but the transverse veil while scanty and arachnoid, is still distinct in the early stages of adult development. In structure of the gleba, the specimens seem to vary considerably. In some, the chambers are very regular in shape and position and this is particularly to be seen in a transverse section of what we may call the pileus. Even on the margins which abut on the stipe and the lower ex-

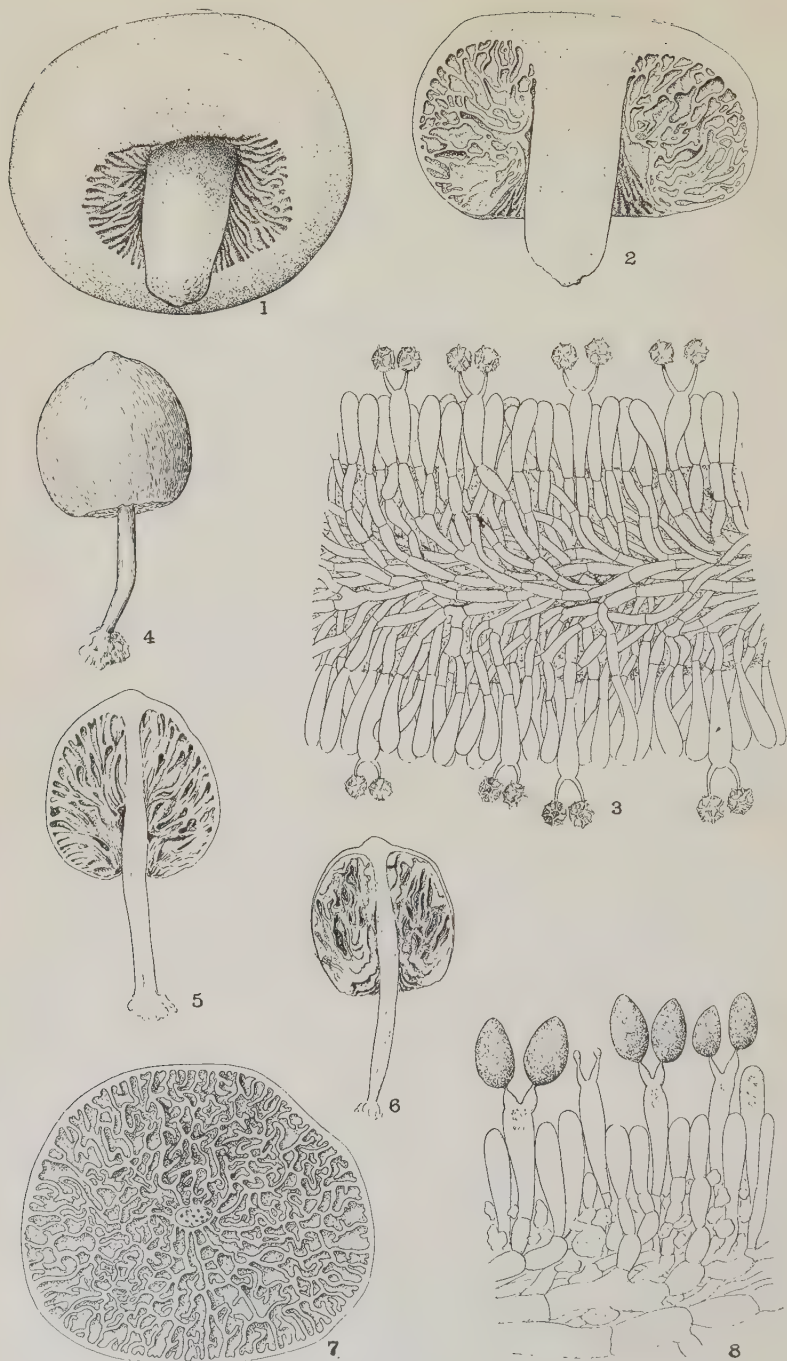
posed portions, the gill-like structure is not very pronounced, but in other specimens the gill-like structure of the gleba is very plainly to be seen. It is always more or less apparent in longitudinal sections as may be seen on comparing figures 5 and 6 on Plate 107. In some cases the anastomosing plates seem much like those of a *Favolus*, although it is difficult to make certain of any regularity such as occurs usually in species of that genus. The polyporoid and agaricoid resemblances are, however, more striking than hymenogastroid. The chambering, nevertheless, is sufficiently complete to range this species in the Hymenogastrineae rather than in any other group of equal rank.

In appearance and structure, this species varies so much from *S. Guenzii*, the type of the genus that it may well be doubted whether it will ultimately be considered cogenetic with it, but, at present, it seems best to refer to *Secotium* rather than attempt to split up that genus. Its nearest relatives are *S. coaractum* Berkeley and *S. Gunnii* Berkeley. It resembles very closely the figures of Berkeley (Hooker's Journal of Botany, 1845) and of Corda (Icones Fungorum, pt. I, pl. 6, f. 25-30), but differs from them in the shape of the pileus (or peridium) and in the shape and size of the spores. From *S. Gunnii* Berkeley as described by Massee (Grevillea, vol. 19, p. 96, 1891), it differs in the slender sterigmata and in the shape and size of the spores. Lloyd (The Lycoperdaceae of Australia, New Zealand and Neighboring Islands, p. 7, pl. 26, f. 7 and 8) figures a plant from Texas, under the name of *S. coarctatum*, which may belong to this species. It agrees reasonably well in habit, but the spores appear to be more globular than in our plants. I am indebted to Dr. Ed. Fischer of Bern, for examining material and giving me the benefit of his opinion concerning the position of this plant.

***Elasmomyces russuloides* sp. nov.** Solitarius aut subgregarius; peridio depresso-globoso, inferne umbilicato et pseudolamellas ostendente, 1-1.5 cm. diam., 1-1.25 cm. alto, albo plus minusve rubescente, glabro; gleba alba, estipite fere ad apicem libera, intus regulariter cellulosa cellulis polygonato-sinuosis, extus plane lamellosis; stipite brevi ad brevissimo, moderate robusto, tereti, nunc recto nunc curvato, per glebam ad apicem percurrente et distincto; basidiis 2-4 sporiferis, sterigmatibus gracilibus curvatisque, cystidiis nunc frequentis nunc sparsis, plus minusve clavatis gracilibusque; sporis globosis, albidis, lineis elevatis in rete irregulariter contextis, 6-8 μ diam. Plate 107, f. 1-3.

Infrequens sub foliis Heteromeles arbutifoliae et *Quercus agrifoliae*, in Berkeley, California. Coll. N. L. Gardner et W. A. Setchell.

This species, unlike the preceding, is not at all plentiful in the region about Berkeley, where it has been found thus far, only, and occurs in small numbers usually more or less buried in the soil and covered by a thick layer of leaves. When the leaves are



SECOTIUM TENUIPES SETCHELL n. sp., AND ELASMOMYCES RUS-
SULOIDES SETCHELL n. sp.

raked off it is seen partially (up to about half) buried and looking very much like a young *Russula* of one or other of the common red-topped species. The illusion is not dispelled when it is removed from its place and examined, for the pseudo-lamellae showing at the base of the peridium give still a very decided agaricoid appearance. When the gleba is cut across, however, all doubt is removed, since, except for the percurrent stipe, the structure is thoroughly hymenogastroid. The lacunae are regular and open and there is no such inner indefinite and confusing lamelliform structure as has been mentioned as occurring in the preceding species. A comparison of figures 2, 5, and 6 will show what is meant better than words may describe. The basidia are most commonly 2-spored in the specimens I have examined and the spores while simply appearing rough under a moderate power still show something of the irregular reticulation of raised lines which appear distinctly when subjected to examination with an oil immersion objective. In some specimens cystidia appear very numerous while in others few are to be seen. The affinities of this species are very closely with *E. Mattirolanus* Cav., from which it is to be distinguished by the color of the peridium, the more rounded and thicker margins, and the smaller sculptured spores. Dr. Ed. Fischer has kindly compared our specimens with an original plant from Cavara and points out these distinctions. From *Secotium* (*Elasmomyces*) *Krjukowense* Bucholtz and S. (*Elasmomyces*) *Michailowskianum* Bucholtz, so far as I may judge from the descriptions, this species differs in color as well as size and markings of the spores. These three species seem to be the only *Secotiums* thus far described with which it is necessary to compare our plan.

University of California, Berkeley.

October 21, 1907.

EXPLANATION OF PLATE IO7.

Elasmomyces russuloides sp. nov.

1. General habit of a typical plant seen obliquely from below. $\times 2$ diam.
2. Half of a similar plant, divided longitudinally in the median plane. $\times 2$ diam.
3. Portion of a section across a trama-plate, showing the basidia and spores. $\times 1000$ diam.

Secotium tenuipes sp. nov.

4. General habit of a typical plant, seen from the side. 1 diam.
5. Half of a similar plant, divided longitudinally in the median plane. $\times 1$ diam.
6. Similar view of another typical plant. $\times 1$ diam.
7. Surface view of medium transverse cut of the pileus, showing peridium, gleba, and stipe. $\times 2$ diam.
8. Small portion of the hymenium, showing basidia, spores, and cystidia. $\times 1000$ diam.

Drawings prepared by H. N. Bagley under direction of the writer.

SACCARDO'S RECENT ARRANGEMENT AND NOMENCLATURE OF THE FUNGI.

A REVIEW BY W. A. KELLERMAN.

In the *Bullettino della Societa Botanica Italiana*, issued March 30, 1907, we find the following title: P. A. Saccardo e G. B. Traverso:—Sulla Disposizione e nomenclatura dei gruppi micologici da seguirsi nella Flora Italica Cryptogama. The authors seize the opportunity while their Flora is being printed, to outline a more consistent terminology and arrangement of the groups of the fungi, which we desire to commend, and therefore reproduce the same below. Saccardo has heretofore called attention to the propriety of using the Latin form *-mycetæ*, instead of the Greek *-mycetes*, since these words are in apposition to the Latin word *plantæ*. He himself has been using it and other botanists also are taking it up.

In the scheme it will be seen that the termination *-ales* is used for the Orders and *-uceæ* for the Families. The authors for the names of the several groups are given, also the date when each was published. An attempt has been made to reproduce this important part of the article verbatim et literatim, as follows:

REGNUM VEGETABLE: *PLANTÆ*.

Series: *CRYPTOGAMÆ* (Linn. 1737) em.

Subseries: *MYCETÆ* seu *FUNGI* (Juss. 1728) em.

Divisio I. **EUMYCETÆ** Eichler 1883 (= *Hyphomycetæ* Bref. 1877, non Mart.).

Subdiv. I. **Teleomycetæ** Sacc. 1902 (in *Rendic. Congr. Bot. Palermo*, 1902).

Classis I. **Basidiomycetæ** De By., in Streinz *Nomencl. Fungor.*, 1862) em. (= *Basidiosporeæ* Lév. 1837.)

Subcl. I. **Eubasidiæ** (Schröt. 1889) em.

Ordo I. **Hmeniesaly** (Fr. 1821) em. nom., seu *Hymenomycetæ* Fr.

Fam. I. **Agaricaceæ** Fr. 1825

" II. **Polyporaceæ** Fr. 1825

" III. **Hydnaceæ** Pers. 1801

" IV. **Clavariaceæ** Cda. 1842.

" V. **Thelephoraceæ** Pers. 1822.

Ordo II. **Gasterales** (Willd. 1802) em., seu *Gasteromycetae* Willd.

Fam. I. **Lycoperdaceae** Ehrenb. 1818

" II. **Sclerodermataceae** Fr. 1825

" III. **Nidulariaceae** Fr. 1780.

" IV. **Hymenogastraceae** Vitt. 1831.

Ordo III. **Phalloidales** (Fr. 1825) em. nom.

Fam. I. **Phallaceae** Fr. 1849

" II. **Clathraceae** Fr. 1849.

Subcl. II. **Protobasidiae** (Bref. 1888) em.

Ordo I. **Tremelloidales** (Agardh 1827) em.

Fam. I. **Pilacreaceae** Bref. 1888

" II. **Dacryomycetaceae** Bref. 1888

" III. **Tremellaceae** (Agardh 1821) em.

" IV. **Auriculariaceae** Bref. 1888.

Ordo II. **Uredinales** (Brongn. 1824) Dietel 1897.

Fam. I. **Pucciniaceae** Schröt. 1887

" II. **Cronartiaceae** Diet. 1899

" III. **Coleosporiaceae** Diet. 1899

" IV. **Melampsoraceae** Schröt. 1887.

Subcl. III. **Hemibasidiae** Schröt. 1889.

Ordo I. **Ustilaginales** (Tul. 1847) em. nom.

Fam. I. **Tilletiaceae** Tul. 1847

" II. **Ustilaginaceae** Tul. 1847.

Classis II. **Ascomycetae** (Fr. 1825) em.

Subcl. I. **Euascae** (Schröt. 1889) em.

Ordo I. **Laboulbeniales** (Peyr. 1875) em. nom.

Fam. I. **Laboulbeniaceae** Peyr. 1875.

Ordo II. **Pyreniales** (Fr. 1823, em. De Not. 1844) em. nom., seu *Pyrenomycetae* Fr.

Fam. I. **Xylariaceae** Tul. 1863

" II. **Valsaceae** Tul. 1863

" III. **Ceratostomataceae** Wint. 1887

" IV. **Sphaeriaceae** (Fr. 1849) em. Sacc. (1899)

" V. **Perisporiaceae** Fr. 1821

" VI. **Erysiphaceae** Lév. 1849

" VII. **Dothideaceae** Nitschke in Fuck. 1869

" VIII. **Hypocreaceae** De Not. 1844

" IX. **Coryneliaceae** Sacc. 1891

" X. **Microthyriaceae** Sacc. 1883

" XI. **Lophiostomataceae** Sacc. 1883.

Ordo III. **Hysteriales** (Cda. 1842) em. nom.

- Fam. I. **Hysteriaceae** Cda. 1842
 " II. **Hemihysteriaceae** Speg. 1883.

Ordo IV. **Tuberales** (Vitt. 1831) em. nom.

- Fam. I. **Tuberaceae** (Vitt. 1831) em.
 " II. **Elaphomycetaceae** Tul. 1851
 " III. **Onygenaceae** Fr. 1849
 " IV. **Trichocomaceae** Ed. Fisch. 1896
 " V. **Cenococcaceae** Tul. 1851
 " VI. **Myriangiaceae** Nyl. 1854.

Ordo V. **Discales** (Fr. 1836) em. nom., seu *Discomycetae* Fr.

- Fam. I. **Cyttariaceae** Lév. 1846.
 " II. **Helvellaceae** Pers. 1801
 " III. **Pezizaceae** Fr. 1823
 " IV. **Ascobolaceae** Boud. 1869
 " V. **Dermataceae** Fr. 1823
 " VI. **Bulgariaceae** Fr. 1849
 " VII. **Stictidaceae** Fr. 1825
 " VIII. **Phacidiaceae** Fr. 1821
 " IX. **Patellariaceae** Fr. 1825
 " X. **Cordieritaceae** Sacc. 1884
 " XI. **Caliciaceae** Fr. 1831
 " XII. **Arthoniaceae** Rehm 1891.

Ordo VI. **Gymnoascales** (Baran. 1872) em.

- Fam. I. **Ascocorticiaceae** Schröt. 1893
 " II. **Gymnoascaceae** Baran. 1872.
 " III. **Endomycetaceae** Schröt. 1893
 " IV. **Exoascaceae** Sadeb. 1883.

Subcl. II. **Protoascae** (Schröt. 1889) em.Ordo I. **Saccharomycetales** (Rees 1870) em. nom., seu *Saccharomycetae* Rees.

- Fam. I. **Saccharomycetaceae** Rees 1870
 " II. **Schizosaccharomycetaceae** n. fam., ad int.

Subcl. III. **Hemiascae** Schröt. 1889.Ordo I. **Protomycetales** (De By. 1862) em.

- Fam. I. **Protomycetaceae** De By. 1862 em.
 " II. **Ascoideaceae** Schröt. 1889
 " III. **Monascaceae** Schröt. 1894

Classis III. **Phycomycetae** De By. 1866.

Ordo I. **Zygomycales** (Cohn 1872) em. (= *Zygosporae* Cohn in Hedw. 1872, em.; = *Zygomycetae* Sachs 1874, em.).

Fam. I. **Mucoraceae** (Nees 1817) em.

" II. **Entomophthoraceae** Schröt. 1886.

Ordo II. **Oomycetes** (Cohn 1872) em. (= *Oosporae* Cohn in Hedw. 1872, em.; = *Oomycetes* Sachs 1874, em.).

Fam. I. **Peronosporaceae** De By. 1862

" II. **Cystopodaceae** Schröt. 1889

" III. **Saprolegniaceae** (Pringsh. 1857) em.

" IV. **Monoblepharidaceae** Schröt. 1893

" V. **Ancylistaceae** Pfitz. 1872

" IV. **Chytridiaceae** De By. et Wor. 1863.

Subdiv. II. **Deuteromycetae** Sacc. 1899 (in Syll. Fung., volumine XIV).

Ordo I. **Sphaeropsidales** (Lév. 1845, em. Sacc. 1884).
Lindau 1899.

Fam. I. **Sphaerioidaceae** Sacc. 1884

" II. **Nectrioidaceae** Sacc. 1884

" III. **Leptostromataceae** Sacc. 1884

" IV. **Excipulaceae** Sacc. 1884.

Ordo II. **Melanconiales** (Cda. 1842) em.

Fam. I. **Melanconiaceae** (Cda. 1842) em.

Ordo III. **Hphlaesa** (Mart. 1817) em. nom., seu *Hyphomycetae* Mart.

Fam. I. **Tuberculariaceae** Ehrb. 1818

" II. **Stilbaceae** Fr. 1825

" III. **Dematiaceae** Fr. 1832

" IV. **Mucedinaceae** Lk. 1809.

Divisio II **MYXOMYCETAE** (Wallr. 1833) em.

Ordo I. **Myxomycetales** (Wallr. 1833) em. nom.

Fam. I. **Myxomycetaceae** Wallr. 1833

" II. **Ceratiomyxaceae** Schröt. 1889

" III. **Acrasiaceae** Van Tiegh. 1880

" IV. **Phytomyxaceae** Schröt. 1886

" V. ? **Monadinaceae** Cienk. 1865.

Divisio III. **SCHIZOMYCETAE** Naeg. 1857.

Ordo I. **Schyzomycetales** (Naeg. 1857) em. nom.

Fam. I. **Myxobacteriaceae** Thaxt. 1892

" II. **Beggiatoaceae** Mig. 1894

" III. **Chlamydobacteriaceae** Mig. 1894

" IV. **Spirillaceae** (Cohn 1872) Mig. 1894

" V. **Bacteriaceae** Zopf 1883

" VI. **Coccaceae** Zopf 1883.

NORTH AMERICAN SPECIES OF AGARICACEAE.

A. P. MORGAN.

THE MELANOSPORAE. (Continued).

(Continued from page 153).

V. PSILOCYBE FRIES, SYST. MYC. I, 1821.

Pileus fleshy, convex or campanulate, smooth and glabrous, the margin at first incurved. Stipe subcartilaginous, tough and flexible or rigid, fistulous and stuffed or hollow, exceptionally solid, usually smooth and glabrous. Lamellae adnexed or adnate, becoming purple or brown; spores in mass purplish-brown or purplish-black, sometimes brown.

Growing on old trunks or mostly on the ground in fields and woods. Passing easily into *Psathyra* on the one hand and not sharply distinguished from *Hypholoma* on the other.

I. SPADICEAE. *Pileus fleshy but thin, hygrophanous, brownish when moist, and usually striatulate, expallent in drying; veil none. Stipe slender, rigid, glabrous or silky fibrillose.*

a. Lamellae broad.

I. PSILOCYBE CORNEIPES FRIES, MON. HYM. SUEC. II. 1863. ICONS. SEL. 136.

Pileus submembranaceous, campanulate then convex, smooth and glabrous, hygrophanous, when wet bay, when dry ochraceous, the margin striate. Stipe slender, horny rigid, smooth and shining, fistulous, bay or blackish. Lamellae very broad, subdistant, adnate, at first whitish then clouded with brown from the spores.

Growing in dense wet woods; Pacific Coast Cat. *Pileus* 1-2.5 cm. in diameter; *stipe* 4-6 cm. long, 2-3 mm. thick. A species remarkably distinct on account of having a *stipe* like that of *Mycena cohaerens*.

2. *PSILOCYBE CLIVENSIS* B. & BR., ANN. N. H. 1860.

Pileus submembranaceous, convex, smooth, atomate, hygrophanous, the margin striate, at first pale brown, then pale ochre inclining to white. Stipe nearly equal above the slightly clavate base, fistulous, somewhat silky. Lamellae broad, emarginate, rather distant, umber, the edge white; spores umber, 10×5 mic.

Growing on the ground along the borders of woods. New York, *Peck*. Pileus 2-3 cm. in diameter; stipe 3.5-4 cm. long, 2 mm. thick.

3. *PSILOCYBE FUSCOFULVA* PECK. BULLETIN I, No. 2. 1887.

Pileus thin, convex or subcampanulate, subumbonate, glabrous, hygrophanous, dark watery-brown and striatulate when moist, subochraceous when dry. Stipe slender, flexuous, stuffed, slightly silky, reddish-brown. Lamellae rather broad, moderately close adnate, subventricose, purplish-brown; spores purplish-brown, $10-12 \times 6-8$ mic.

Growing among *Sphagna*; New York, *Peck*. Pileus 1-2.5 cm. in diameter; stipe 4-6 cm. long, 2-4 mm. thick.

4. *PSILOCYBE SQUALIDELLA* PECK, 46 N. Y. REP. 1892. *A. (HYPHOLOMA) SQUALIDELLUS* PECK, 29 N. Y. REP. 1876.

Pileus thin, subcampanulate or convex then expanded, smooth, hygrophanous, pale alutaceous or watery-brown when moist, ochraceous or reddish-yellow when dry, the margin striate. Stipe slender, flexuous, stuffed or hollow, reddish-brown, paler at the summit, white-villous at the base. Lamellae broad, rounded behind, adnexed, whitish then purplish-brown; spores purple-brown, elliptic, $9-10$ mic. long.

Gregarious or caespitose; growing in wet places in woods; New York, *Peck*. Pileus 1-2.5 cm. in diameter; stipe 3-5 cm. long, 2 mm. thick.

5. *PSILOCYBE SPADICEA*, *AGARICUS SPADICEUS* SCHAEFFER, 1874. *AGARICUS STIPATUS* FRIES, SYST. MYC. I. 1821.

Pileus fleshy, convex then plane, obtuse, smooth, wet, hygrophanous, umber-brown, becoming pallid when dry; the flesh whitening. Stipe tough, hollow, pallid, smooth at the apex. Lamellae rather broad, close, rotundate-adnexed, at first whitish, then flesh-color, at length brown; spores brown, elliptic, $8-9 \times 4-5$ mic.

Subcaespitose; growing on the ground among old leaves, at the base of stumps, etc. Recorded from the Atlantic to the Pacific States; a world-wide species. Pileus 5-10 cm. in diameter; stipe 6-12 cm. long, 6-10 mm. thick.

6. *PSILOCYBE FOENISECII* PERSOON, IC. ET DESCR. FUNG. 1799. SYNOPSIS, 1801. PECK, N. Y. REP. 1903.

Pileus fleshy, campanulate then convex and expanded, obtuse, glabrous, hygrophanous, brown or reddish-brown when moist, paler when dry. Stipe slender, fistulous, smooth and glabrous, pallid, rufescent. Lamellae broad, adnate, ventricose, subdistant, umber-brown; spores brown, elliptic-oblong, 11-14 x 6-9 mic.

Growing in the rich soil of grassy grounds, on lawns, in meadows, along roadsides, etc. Recorded from Atlantic to Pacific States, probably common everywhere. Pileus 1-3 cm. in diameter; stipe 5-9 cm. long, 2-4 mm. thick.

7. *PSILOCYBE PHYLLOGENA*, A. (HYPHOLOMA) PHYLLOGENUS PECK, 26 N. Y. REP. 1873.

Pileus firm, convex, hygrophanous, reddish-brown when moist, alutaceous when dry. Stipe equal, stuffed or hollow, fibrillose, expanding at the base into a thin flat disk. Lamellae broad, close, brown, the edge white; spores pale brown, subglobose, 5 mic. in diameter.

Growing on fallen leaves in woods; New York, *Peck*. Pileus 4-8 m. m. in diameter; stipe 1.5-2.5 cm. long, 1 mm. thick. A very small but distinct species, remarkable for the flat disk by which it is attached to the leaves.

8. *PSILOCYBE ARENULINA* PECK, 30 N. Y. REP. 1877.

Pileus convex then explanate or centrally depressed, glabrous, hygrophanous, dark brown and striatulate when moist, livid-white when dry. Stipe tapering slightly upward, fistulous, whitish, arising from a mycelial bulb. Lamellae close, cinnamon-brown, becoming darker with age; spores subelliptic, 10 mic. long.

Growing in sandy soil; New York, *Peck*; Michigan, *Kauffman*. Pileus 1-3 cm. in diameter; stipe 4-6 cm. long, 2 mm. thick.

b. Lamellae rather narrow.

9. *PSILOCYBE UNICOLOR* PECK, 53 N. Y. REP. 1899.

Pileus thin, broadly convex then expanded, hygrophanous, when wet brown and striatulate, pale brown or whitish when dry. Stipe short, equal, glabrous, stuffed or hollow, brownish. Lamellae narrow, close, adnexed, brown, at length darker; spores elliptic, 6 x 4 mic.

Growing on prostrate mossy trunks. New York, *Peck*. Pileus 1-2 cm. in diameter; stipe 1.5-2 cm. long, 2 mm. thick. Related to *Ps. campopoda*.

10. *PSILOCYBE CASTANELLA* PECK, BULLETIN I, No. 2, 1887.

Pileus thin, convex or subconical, then expanded or slightly depressed, glabrous, hygrophanous, chestnut or umber and striatulate when moist, pale alutaceous when dry. Stipe equal, flexuous, hollow or stuffed, silky-fibrillose, brownish or subrufescent, with a white mycelium at the base. Lamellae close, adnate, at first pale brown, then purplish-brown; spores purplish-brown, $7-8 \times 4-5$ mic.

Gregarious or subcaespitose; growing in grassy ground by roadsides; New York, *Peck*. Pileus 1-1.5 cm. in diameter; stipe 3-5 cm. long, 1-2 mm. thick.

11. *PSILOCYBE CAMPTOPODA* PECK 31 N. Y. REP. 1878.

Pileus thin, broadly convex, glabrous, hygrophanous, brown and striatulate when moist, whitish and even when dry. Stipe solid, equal, smooth, generally curved, pruinose at the summit, with a white strigose mycelium at the base. Lamellae narrow, close, whitish becoming brown; spores elliptic, 6×4 mic.

Growing on old trunks in woods; New York, *Peck*. Pileus 1-2 cm. in diameter; stipe 2-3 cm. long.

12. *PSILOCYBE RHODOPHAEA* MONTAGNE, SYLL. CRYPT. 389.

Pileus submembranaceous, convex then expanded, smooth and glabrous, hygrophanous, rose-color or lilac, rufescent when dry. Stipe tall, flexuous, fistulous, concolorous with the pileus, except at the apex where it is white striatulate, the base floccose-fibrillose. Lamellae rather narrow, distant attenuate-adnexed, at first rose-color becoming blackish-brown; spores brown, elliptic, $16 \times 7-8$ mic.

Growing on old leaves in woods; Columbus, O., *Sullivant*. Pileus 1-2 cm. in diameter; stipe 7-9 cm. long, 1-2 mm. thick.

13. *PSILOCYBE PULICOSA* MONTAGNE, SYLL. CRYPT. 388.

Pileus fleshy, thin, conic then campanulate, obtuse, striatulate, hygrophanous, dark brown when wet, expallent in drying. Stipe long; slender, fistulous, smooth, pallid. Lamellae narrow, linear, adnate, pale umber, becoming brown or blackish; spores dark brown, elliptic, large, 20 mic. long. (?)

Growing on the ground; Columbus, O., *Sullivant*. Pileus 2-3 cm. in diameter; stipe 7-9 cm. long, 3-4 mm. thick. Closely related to *Ps. spadicea*.

14. PSILOCYBE SQUALENS FRIES, EPICRISIS, 1836. ICONES SEL. 137.

Pileus fleshy, thin, convex then plane or depressed, smooth and glabrous, hygrophanous, when wet dull ferruginous or ochraceous, expallent when dry. Stipe nearly equal, fistulous, scantily fibrillose, striate at the apex, nearly the same color at the pileus. Lamellae narrow, close, adnate, often decurrent by a tooth, pale-brown; spores ferruginous-brown.

Solitary or caespitose; growing on old rotten trunks; Pacific Coast Cat. Pileus 3-5 cm. in diameter; stipe 3-5 cm. long, 2-4 mm. thick. On account of the color of the spores Fries thought the species might better be referred to *Naucoria*.

15. PSILOCYBE LIMICOLA PECK, 24 N. Y. REP. 1871.

Pileus thin, convex then expanded, smooth, hygrophanous, dark watery brown and striatulate when moist, pale ochraceous-brown when dry and rugulose. Stipe slender, equal, brittle, silky, fistulous, whitish. Lamellae close, rounded behind, adnexed, cinnamon-brown, becoming darker; spores elliptic, 10 mic. long.

Subcaespitose; growing in damp muck soil in woods. New York, *Peck*. Pileus 1-2.5 cm. in diameter; stipe 5 cm. long, scarcely 2 mm. thick.

16. PSILOCYBE CERNUA, AGARICUS CERNUUS, VAHL IN FLORA DANICA. AGARICUS FASCICULATUS SCHAEFFER, INDEX. 1774.

Pileus fleshy campanulate then expanded, glabrous, hygrophanous, pallescent, white and rugulose when dry. Stipe slender, fistulous, flexuous, glabrous, white, smooth and pruinose at the apex. Lamellae rather narrow, subdistant, becoming ventricose, adnate, whitish-cinereous then blackish-brown; spores elliptic, 7-9 x 5-6 mic.

Commonly caespitose; growing on the ground among old leaves and rotten wood. New York, *Peck*; Preston, O. Pileus 3-6 cm. in diameter; stipe 5-7 cm. long, 4-5 mm. thick.

II. CALLOSAE. *Pileus fleshy, mostly bright colored, somewhat expallent, but scarcely hygrophanous or striatulate, in wet weather the surface often slightly viscid. Stipe callous, flexile, usually colored, glabrous or silky-fibrillose.*

a. Lamellae broad.

17. PSILOCYBE ERICAEA PERSOON, SYNOPSIS, 1801. FRIES, ICONES SEL. 136. COOKE, ILLUSTR. 568.

Pileus fleshy, thin, conic then convex and explanate, smooth and glabrous, slightly viscid when wet, shining when dry, ferruginous or fulvous. Stipe elongated, tough, fistulous, pallid or pale yellow, white-villous at the base. Lamellae broad, subdistant, adnate, pallid then blackening; spores 8-10 x 5 mic.

Growing on the ground in humid situations in mountain regions. N. Carolina and Pennsylvania, *Schweinitz*; Pacific Coast Cat. Pileus 2-4 cm. in diameter; stipe 7-10 cm. long, 3-4 mm. thick.

18. PSILOCYBE UDA PERSOON, SYNOPSIS, 1801. COOKE ILLUSTR. 569.

Pileus fleshy, thin, convex then explanate, rugulose, not viscid, testaceous to fulvous, expallent but not hygrophanous. Stipe slender, elongated, fistulous, tough, glabrous or fibrillose, pale tawny or ferruginous. Lamellae rather broad, adnexed or adnate, ventricose, at first whitish becoming purple; spores oblong, 16-20 x 7-9 mic.

Growing in sphagnum marshes; New England, *Sprague*; New York, *Peck*. Pileus 1-3 cm. in diameter; stipe 6-9 cm. long, 2-3 mm. thick.

19. PSILOCYBE SUBERICA EA FRIES, ICONES SELECTAE. 1880. COOKE, ILLUSTR. 588.

Pileus fleshy, convex then explanate, smooth and glabrous, fulvous. Stipe short, fistulous glabrous, yellowish. Lamellae very broad, sinuate-adnate, pallid then blackening; spores brown, ovoid-oblong, 12-14 x 6 mic.

Growing in sterile fields; Alabama, *Underwood* and *Earle*. Pileus 3-5 cm. in diameter; stipe 4-5 cm. long, 3-4 mm. thick. Much resembling *Ps. ericaea*, but the stipe is shorter, the pileus more dilated and it occupies a very different habitat.

20. PSILOCYBE ELONGATIPES PECK, 29 N. Y. Rep. 1876.

Pileus thin, convex then expanded, smooth, moist, yellow. Stipe elongated, rather fragile, flexuous, stuffed or hollow, silky-fibrillose, pallid to rufous. Lamellae broad, subdistant, ventricose, yellowish becoming brown; spores brown, elliptic, 10-12 mic. long.

Growing among *Sphagnum* in marshes and wet places in woods; New York, *Peck*. Pileus 1-2 cm. in diameter; stipe 8-12 cm. high, 2 mm. thick.

21. PSILOCYBE PLUTONIA B. & C., FUNGI CUB. 77. 1867.

Pileus thin convex then plane, glabrous, brown. Stipe tapering downward, slightly fistulous, glabrous, brown. Lamellae broad, rounded behind, adnate, brown; spores brown, subglobose.

Growing on dead wood; Cuba, *Wright*. Pileus 1-2.5 cm. in diameter; stipe 5 cm. high, 2 mm. thick.

22. PSILOCYBE SABULOSA PECK, BULL. TORR. CLUB. 1897.

Pileus convex, subumbonate, glabrous, yellow. Stipe equal, fistulous, pallid or straw-color. Lamellae broad, subdistant, ventricose, adnate, becoming purplish-brown, whitish on the edge; spores elliptic, 12-15 x 7-8 mic.

Growing in sandy soil in pastures; Kansas, *Bartholomew*. Pileus 1.5-2.5 cm. in diameter; stipe 2.5-4 cm. long, about 2 mm. thick. This species is quite distinct from *Ps. arenulina* which is hygrophanous.

23. PSILOCYBE LIMOPHILA PECK, 30 N. Y. REP. 1877.

Pileus thin, convex then expanded, fragile, atomaceous, radiately rugulose, whitish, often splitting around the margin. Stipe short, fistulous, equal, white, striate at the summit. Lamellae rather broad, lax, whitish then purplish-brown; spores elliptic, 10-12 x 5-6 mic.

Growing in muddy alluvial soil under willows; New York, *Peck*. It is related to *Hypholoma incertum* but the veil is absent and the spores are larger.

b. Lamellae rather narrow.

24. PSILOCYBE SEMILANCEATA, AGARICUS SEMILANCEATUS FRIES, OBS. II, 1818. HYM. EUR. 1874. A. CALLOSUS, VAR. SYST. MYC. I, 1821. COOKE, ILLUSTR. 572.

Pileus submembranaceous, tough, ovoid-conic, slightly expanded and acutely unbonate; the dermis smooth, viscid when moist, striatulate, easily seceding; the surface various in color, yellow, greenish, etc. Stipe long, slender, tough, flexible, glabrous, pallid. Lamellae ascending, narrow, close, becoming purple-black; spores elliptic-oblong, 10-15 x 5-7 mic.

Growing on manure or in rich soil in fields, pastures, etc. New York, *Peck*. Pileus 1-1.5 cm. high and broad; stipe 7-10 cm. long, 2-3 mm. thick.

25. PSILOCYBE SUBVIRDIS B. & C., FUNGI CUB. 76. 1867.

Pileus depressed, umbonate, glabrous, yellow-green, the umbo brown. Stipe slender, fistulous, glabrous, at the base more or less tomentose. Lamellae narrow, close, adnate; spores purple-brown.

Growing on rotten wood; Cuba, *Wright*. Pileus 1-2 cm. in diameter; stipe 4-5 cm. long, 1 mm. thick.

26. *PSILOCYBE NITIDIPES*, A. (HYPHOLOMA) NITIDIPES PECK, 35 N. Y. REP. 1882.

Pileus fleshy, firm, convex, glabrous or obscurely fibrillose, whitish or yellowish. Stipe solid, nearly equal, whitish, silky-shining. Lamellae close, adnexed, whitish or subcinereous, becoming rosy-brown, the edge white; spores ovoid, rosy-brown, 5.6×4.4 mic.

Growing on damp shaded earth; New York, *Peck*. Pileus 5-7 cm. in diameter; stipe 5-10 cm. high, 6-8 mm. thick.

27. *PSILOCYBE DICHROMA* B. & C., FUNGI CUB. 75. 1867.

Pileus thin, conic then plane, glabrous, fulvous. Stipe fistulous, glabrous, white. Lamellae thin, distant, adnexed, fuscous; spores purple-brown.

Growing on rotten wood; Cuba, *Wright*. Pileus 1-1.5 cm. in diameter; stipe 2-3 cm. high, 2-3 mm. thick. Resembling at first sight *Naucoria copriniceps* B. & C.

28. *PSILOCYBE CAERULIPES* PECK, 38 N. Y. REP. 1884.

Pileus thin, subcampanulate then convex, subumbonate, glabrous, hygrophanous, slightly viscid, watery-brown and striatulate when moist, yellowish or subochraceous when dry. Stipe slender, equal, flexuous, tough, stuffed or hollow, pruinose at the apex, slightly fibrillose, bluish. Lamellae close, adnate, grayish-tawny, becoming rusty-brown, the edge white; spores elliptic, $8-10 \times 4-5$ mic.

Solitary or caespitose; growing on decaying wood; New York, *Peck*. Pileus 1-2 cm. in diameter; stipe 2.5-4 cm. long, scarcely 2 mm. thick.

VI. PILOSACE FRIES, NOV. SYMB. MYC. 1851.

Pileus various, fleshy to submembranaceous, convex or campanulate. Stipe fistulous, stuffed or hollow, mostly smooth and glabrous; annulus none. Lamellae free from the stipe, becoming brown or purplish-brown; spores brown or purplish-brown.

A genus corresponding to *Pluteus* among the *Rhodosporae*.

I. EXIMIAE. *Pileus submembranaceous, the surface smooth and glabrous. Stipe slender, fistulous, smooth and glabrous.*

1. PILOSACE PALMIGENA, A. (PSILOCYBE) PALMIGENA B. & C., FUNGI CUB. 78. 1867.

Pileus thin, hemispheric, white and glabrous, at length explanate brown and slightly viscid. Stipe fistulous, glabrous, white becoming fulvous, strigose at the base. Lamellae broad, free, brown, spores purple-brown.

Growing in stumps of palms in woods; *Wright*. Pileus 8 mm. in diameter; stipe 2-3 cm. long, not 1 mm. thick.

2. PILOSACE EXIMIA PECK, 24 N. Y. REP. 1871 AND N. Y. REP. 1903.

Pileus fleshy, thin, convex or broadly campanulate, at length expanded and subumbonate, smooth, dark sooty brown. Stipe slender, hollow, a little thicker at the base, dull red. Lamellae broad, close, ventricose, rounded behind and free, dull red or brownish pink, then brown; spores reddish, elliptic, 6×4 mic.

Growing on old stumps in woods, New York, *Peck*. Pileus 6-12 mm. in diameter, stipe 2-3 cm. long, 1 mm. thick.

3. PILOSACE GILLETTII, PSILOCYBE GILLETTII KARSTEN, HATTSVAMPAR I. 1879.

Pileus membranaceous, campanulate then convex, often obliquely umbonate, striatulate, glabrous, livid-gray slightly tinged with olivaceous, pale ochraceous when dry. Stipe straight, equal, fistulous, glabrous, slightly pruinose at the apex, dark brown, paler above. Lamellae broad, slightly adnate, soon free, livid-gray, becoming purple; spores elliptic, $10-13 \times 5-6$ mic.

Growing on the ground in woods; Nebraska, *Clements*. Pileus 1-3 cm. in diameter; stipe 5 cm. long, 1-2 mm. thick.

4. PILOSACE ROSEOLA, GYMNOCHILUS ROSEOLUS CLEMENTS, NEB. REP. IV. 1895

Pileus membranaceous, hemispheric or convex, glabrous, rugulose, atomate, vinous when wet, incarnate when dry. Stipe tall, fragile, fistulous, glabrous, shining, mealy at apex. Lamellae rather remote, purplish-cinnamon; spores dark purple, elliptic, $12-13 \times 7-8$ mic.

Growing on the ground; Nebraska, *Clements*. Pileus 1-2.5 cm. in diameter; stipe 4-8 cm. long, 2 mm. thick.

II. LEPIDOTAE. *Pileus fleshy, the surface pilose-scaly or furfuraceous. Stipe rather thick, solid or stuffed, naked or furfuraceous.*

5. PILOSACE TRICHOLEPIS FRIES, NOV. SYMB. MYC. 1851.

Pileus fleshy, convex then expanded, obtuse; the flesh firm but not compact; the surface with a dense covering of brown hairy scales. Stipe firm, equal, fissile, naked, refescent, dilated at the apex. Lamellae narrow, close, remote from the stipe, olivaceous then fuliginous; spores brown.

Growing in rich soil on the Island of St. Thomas, W. I.; Oersted Ic. 20. Pileus 10 cm. in diameter; stipe 12-15 cm. long, 6-8 mm. thick. "A showy fungus." The hairy scales of the pileus resembling those on the surface of *Lentinus tigrinus*.

6. PILOSACE HOLOLEPIS FRIES, NOV. SYMB. MYC. 1851.

Pileus fleshy, convex, obtuse; the flesh firm; the cuticle whitish, at first smooth, at length breaking up into appressed scales which become scattered. Stipe arising from a bulbous base. smooth, white. Lamellae free, becoming brown; spores brown.

Growing on the ground in Costa Rica; Oersted, Ic. 28. Pileus 5 cm. and more in diameter; stipe 5 cm. long, 4-6 mm. thick.

7. PILOSACE OLIVAESPOR, A. (HYPHOLOMA) OLIVAESPORUS E. & E., JOURN. MYCOL. V, 27. 1889.

Pileus convex, subumbonate, brick-color or bay when moist, grayish-buff when dry, the surface covered with a dense furfuraceous coat which soon disappears. Stipe slender, flexuous, fistulous, furfuraceous and colored as the pileus. Lamellae rounded behind and free, at first purplish-violet, then purplish-brown, at length dark brown; spores when fresh olive-brown, becoming umber-brown in drying, elliptic, $3.5-4 \times 2$ mic.

Solitary or subcaespitose; growing among moss in swamps. Newfield, N. J., *Ellis*. Pileus 1.5-2 cm. in diameter; stipe 3-4 cm. long, 1-2 mm. thick.

(*To be continued.*)

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PUCCINIA purpusii P. Henn. Hedw. 37:270, 1898, [is Puccinia plumbaria Peck, on Phlox or some genus near it. Holway.] Holway's N. A. Uredin. 1:47. 15 May 1906.

- PUCCINIA *sidalceae* Holway n. sp. on *Sidalcea oregana* (Nutt.) Gray. Holway's N. A. Uredineae, 1:67. 10 May 1907.
- PUCCINIA *utahensis* Garrett n. sp. on *Thlaspi glaucum*. Holway's N. A. Uredin. 1:46. 15 May 1906.
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- SARCODON *atroviridis* (Morgan) Banker n. n. [Hydnum *atroviride* Morgan; *Phaeodon atroviride* Earle.] Mem. Torr. Bot. Club, 12:148. 13 June 1906.

- SARCODON blackfordae (Peck) Banker n. n. [Hydnum blackfordae Peck.] Mem. Torr. Bot. Club, 12:142. 13 June 1906.
- SARCODON cristatus (Bres.) Banker n. n. [Hydnum cristatum Bres.] Mem. Torr. Bot. Club, 12:140. 13 June 1906.
- SARCODON fennicus Karsten. [Sarcodon scabrosus fennicus Karsten; Hydnum fennicum Sacc.; Phaeodon fennicus Hennings.] Mem. Torr. Bot. Club, 12:146. 13 June 1906.
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- SPHACELOTHECA diplospora verruculosa Clinton n. var. on *Panicum* sp. [Mexico.] N. A. Flora, 7:27. 4 Oct. 1906.
- SPHACELOTHECA panici-leucophaei (Bref.) Clinton n. n. [*Ustilago panici-leucophaei* Bref., and *U. insularis* P. Henn. N. A. Flora, 7:28. 4 Oct. 1906.
- SPHAERIA cinnabarina Tode, syn. of *Nectria purpurea* q. v.
- SPHAERONEMA parasitica L. syn. of *Melanospora parasitica* q. v.
- SPHAEROPSIS (Macropodia) americana Sacc. n. sp. in ramis *Tiliae americanae*. Jour. Mycol. 13:47. Mar. 1907.
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- STECCHERINUM adustulum Banker n. sp. on rotten sticks on ground in woods. Mem. Torr. Bot. Club, 12:133. 13 June 1906.
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- TILLETHIA redfieldiae Clinton n. sp. on Redfieldia flexuosa. N. A. Flora, 7:50. 4 Oct. 1906.
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- TUBERCULINA davisiana Sacc. et Trav. n. sp. in folii adhuc vivis Salicis cordatae. Ann. Mycolog. 5:176. Apr. 1907. [Issued 15 Mai 1907.]
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NOTES FROM MYCOLOGICAL LITERATURE. XXVI.

W. A. KELLERMAN.

Bommer, E., et Rousseau, M., Mmes.

In the Rapports scientifiques of Résultats du voyage du S. V. Belgica en 1897-9, Expedition Antarctique Belge, we find under the title of "Champignons by the above authors, the following, collected in Terre de Feu, with descriptions and localities; Lycogala miniatum Pers.; Sarcoscypha racovitzae Bomm. et Rouss.; Belonium graminis (Desm.) Sacc.; Mollisia riparia Sacc.; Cyttaria darwini Berk.; Lophodermium arundinaceum Chev.; Lembosia drymidis Lév.; Podocrea deformans Bomm. et Rouss.; Chaetomium comatum Fr.; Puccinia cingens Bomm. et Rouss.; Aecidium jacobsthallii henrici Magnus; Exidia rubra Bomm. et Rouss.; Tremella mesenterica Retz; Trametes albido-rosea Bomm. et Rouss.; Flammula inconspicua Bomm. et Rouss.; Omphalia stella Bomm. et Rouss.; Chalara cyttariae Bomm. et Rouss.; Cladosporium herbarum (Pers.) Lk.; Macrosporium

commune Rab.; *Sclerotium antarcticum* Bomm. et Rouss.; *Sclerotium* (*Myxomycetis*?)

Orton, W. A.

The annual summary of "Plant Diseases in 1906" occupies eight closely printed pages in the Yearbook of the U. S. Department of Agriculture for 1906.

Sheldon, John L.

In a short article relative to "The Taxonomy of a Leaf-Spot Fungus of the Apple and other Fruit Trees," it is pointed out that the spores are not hyaline, not *slightly* smoky but considerably smoky, even approaching olive-brown. Hence, *Phyllosticta pirina* Sacc. is transferred to the genus *Coniothyrium* — *C. pirina* (Sacc.) Sheldon n. n. See Torrey, July, 1907.

Overton, James Bertram.

This excellent piece of work — "The Morphology of the Ascocarp and Spore-formation in the many-spored Asci of *Thecotheus pelletieri*" — published in the Botanical Gazette, December 1906, could not be adequately sketched in a single paragraph even of considerable length. Copious literature is cited and discussed, then the work on *Thecotheus*, a Discomycete (*Ascobolaceae*) is outlined, and illustrated by two lithographic plates. This fungus has a fruit-body formed from several ascogonia (being a compound apothecium). The asci arise, says the author, from the subterminal cells of the recurved tips of the ascogenous hyphae which cells are binucleate; and the ascus nucleus is formed by the fusion of these two primary ascus nuclei. The ascus nucleus divides by triple division — and finally 32 free nuclei are formed in the ascus. Spore delimitation follows the process described by Harper; each spore is uninucleate.

Durand, Elias J.

Dr. Durand gives a brief account in the Journal of Mycology, July 1907, of "The Mycological Writings of Theodor Holmskjöld and their relation to Persoon's *Commentatio*." His points are that Holmskjöld's text has appeared in four forms: (1) as a privately distributed folio volume with plates, 1790; (2) as a contribution to Usteri's *Annalen* without plates, 1795; (3) as a volume edited by Persoon without plates, 1797; (4) as a volume of "*Beata ruris, Fungis danicis a Theodoro Holmskjöld impensa*", with plates, 1799. Persoon's *Commentatio* appeared first in his edition of Holmskjöld, 1797, and in the same year as a reprint from the last with a modified title and slightly modified text.

Sumstine, David R.

A description of "*Polyporus Pennsylvanicus* Sp. Nov." is given in the July No. of the *Journal of Mycology*. The plant is related to *P. polyporus*, *P. arcularius*, *P. elegans*, and *P. lentus*.

Sheldon, John L.

Diseased plants in the greenhouse of the West Virginia Experiment Station harbored a *Gloeosporium*, from which pure cultures were made and subjected to critical study. Perithecia appeared containing slender paraphyses and club-shaped asci with hyaline single-celled spores. The name given is *Physalospora Dracaenae* Sheldon n. sp. See "A Study of the Leaf-Tip Blight of *Dracaena Fragrans*," in the *Journal of Mycology*, July 1907.

Christman, A. H.

In the 15th volume of the *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, "The Nature and Development of the Primary Uredospore" is discussed and illustrated with a page of figures. The author says "The hyphae of the primary uredospores differ from those that produce the later uredospores, in that they apparently also produce spermatia while those of the secondary uredospores do not. In structure, too, there is a difference. "Those hyphae associated with the spermatia, in every case that I have observed, are composed of uninucleated cells, while the mycelial cells of stages unaccompanied by spermatia have regularly two more compact and smaller nuclei." The development of the cells preparatory to fusion is sketched. "The cells fusing are, as far as can be seen, *equal*, and the process is, at least apparently, a *fusion of equal gametes*, rather than the fertilization of an egg by the entrance of a nucleus from some other cell." The fusion cell is therefore practically, at least, a zygospore — but the reader must refer to the article to follow the argument.

Spaulding, Perley.

A brief account is given, *Science*, August 16 (1907), of "A Blight Disease of Young Conifers," due to a species of *Pestalozzia* — here proven for the first time in America to be a true parasite, as hitherto known in Europe. It occurred on two-year-old seedlings of *Pinus ponderosa* and *P. divaricata* in a conifer nursery in Nebraska. The disease is characterized by a gradual dying back of the needles from the tip to the base, thence into the stem, finally killing the tree. Pure cultures and successful inoculations on *Pinus ponderosa* were made. It is recommended to remove the diseased trees and spray with Bordeaux mixture.

Journal Royal Horticultural Society, Vol. XXX, 1906.

In this volume there were published two mycological articles by Ernest S. Salmon, namely, "On the American Mildew and the need for Legislation;" and "On a Fungus Disease of the Cherry Laurel," (*Prunus laurocerasus* L.).

Journal Royal Agricultural Society, Vol. 67, 1906.

In the "Annual Report for 1906 of the Consulting Botanist," William Carruthers, a short popular account is given of a few diseases of plants, as Pear rust (*Gymnosporangium sabinae* Dicks), and the American Gooseberry Mildew (*Sphaerotheca mors-uvae* Berk.).

Peck, Charles H.

In the "Report of the State Botanist 1906," which is Bulletin 116, Botany 10, New York State Museum, published July 1907, we find the usual plan of these valuable annual accounts. About two dozen species of Mushrooms are described and several new names are given. Eleven species of edible Fungi are described and illustrated by colored plates. A monograph is given of the New York species of *Hygrophorus*, and of *Russula*. These are accompanied with full clear keys, making them very useful to those who wish to study our Agarics. It would require small addition to extend the range and include all species in the Eastern United States; we hope to see these studies of Agaricaceae from year to year until all the genera are presented.

Sheldon, John L.

In an article in *Science*, August 9, 1907, this author states that he has been, during the past four years, collecting specimens of Apple leaves and fruits having spots on them caused by fungi. The fungus here discussed is *Phyllosticta solitaria* E. & E., found on leaves also of the crab-apple. Then it was found on the petioles of the common and the crab-apple, also on yearling and older branches. This disease has been called "fruit-blotch," "apple-blotch," "dry-rot," etc.

Heald, F. D.

In *Science*, for August 16, 1907, some observations on "*Gymnosporangium macropus*," as to the time of infection, were made in Nebraska, 1906 and 1907; concluding that two explanations suggest themselves: "(1) The fungus is either perennial in the cedar, or, (2) The aecidiospores of one season produce the cedar apples which appear in June of the next year and reach maturity in the autumn." Though there is some evidence of the perennial character of the fungus, the observer thinks his second explanation the more probable.

Bioletti, Frederic T.

In a Bulletin (186) of the California Agricultural Experiment Station, February 1907, we find an account of the "Oidium or Powdery Mildew of the vine,"—a description of the disease (*Uncinula spiralis*) and results of spraying. Of the four most serious fungous disease—*Peronospora*, Black Rot, Anthracnose and Powdery Mildew (or Oidium)—the last only is found in California. Anthracnose is a native of Europe, but the others originated on the wild vines of the eastern and central parts of the United States. The dryness of our climate [says the author] is undoubtedly the cause of our immunity to *Peronospora*, Anthracnose, and Black Rot, and while Oidium requires less moisture than these diseases for its development, it spreads more rapidly and is more difficult to control in a moist atmosphere than a dry one."

Rea, Carleton.

Based mainly on the characters of the exoperidium it is told in plain language "How to distinguish the species of British Lycoperda in the field," in a pamphlet of four pages, issued by the British Mycological Society, October 1906. The author suggests that George Massee's division of the species into those with rough spores and those with smooth spores is scarcely apropos—and commends Von Bembeke's sections, *Asterosporae* and *Subasterosporae*. He disagrees also with C. G. Lloyd's definition of *Calvatia* and *Bovistella*.

Thom, Charles.

The subject of "Fungi in Cheese Ripening" is discussed at length, as based on the investigation of this author, particularly of Camembert cheese and Roquefort cheese. *Penicillium camemberti* Thom (nomen novum) and *Penicillium roqueforti* Thom (nomen novum) are technically described; and *Oidium* or *Oospora lactis*, a cosmopolitan organism, also occupies a conspicuous place in the report.

Schrenk, Herman von, and Hedgcock, George G.

Some experiments to determine whether by wrapping grafts it would be possible to reduce the number of apple trees affected with crown-gall, are reported in Bulletin 100 of the U. S. Department of Agriculture, Bureau of Plant Industry. Some of the points in the summary are that the disease usually appears at or near the union of the scion and root piece and it is recommended that apple grafts be wrapped with cloth or rubber.

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